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NEW TECHNIQUES INCREASE USSR LABOR PRODUCTIVITY, TOOL LIFE

LOADING DEVICE CONVERTS SEMIAUTOMATIC LATHE TO AUTOMATIC CYCLE -- Moscow,
 Podshipnik, Mar 53

In the production of bearing rings, the work of a lathe operator on a semiautomatic lathe is characterized by the removal and insertion of from three to five rings per minute while attending a pair of machine tools. Under these conditions, the worker constantly soils his hands in the coolant which tends to cause skin diseases.

To ease the work of the machine-tool operator, N. M. Knyaz'kov developed a ZT1 loading device which was built into a Model 1261P semiautomatic lathe. The loading device automatizes not only the loading and unloading of the workpiece, but also the entire work cycle of the machine, transforming the latter into a magazine automatic. After a 6-month test in the automatic lathe shop of the Moscow First State Tractor Plant, the device was pronounced suitable for use in industry. -- N. M. Knyaz'kov, engineer-designer

ATTACHMENT BRINGS WORKPIECE SPEED TO 5,000 RPM -- Ashkhabad, Turkmenkaya Iskra,
 31 Mar 53

A new lathe installed at one of the shops of the Leningrad Experimental Machinery Plant was assigned to V. Logvinov, an outstanding worker at the enterprise. Machining a group of small parts for a fish-processing machine, Logvinov noticed that the small diameters of the parts nullified all the advantages of the new machine tool. Even at maximum cutting speeds, the lathe could not exceed 60-80 meters per minute.

Logvinov devised an attachment, consisting of pulleys and drives, for his machine tool. When the machine was put into operation, the workpiece rotated at 5,000 rpm. The parts emerged with finished surfaces and the need for grinding was eliminated.

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The plant party organization has approved Logvinov's innovation and an all-plant Stakhanovite school has been organized to disseminate his method of high-speed metal cutting.

Series production of the attachment has been started at the plant and all lathes at the enterprise will be equipped with the attachment.

USE VORTICAL METHOD FOR THREADING PARTS -- Moscow, Vechernyaya Moskva, 27 Mar 53

In the second machine shop of the Moscow Borets Plant, a threading method referred to as the vortical (vikhrevyy) is being used in the manufacture of internal trapezoidal threads on parts for the petroleum industry. It would require 35-40 minutes to machine such a part on an ordinary lathe. Using an attachment and a new cutting tool, Razorenkov, a Stakhanovite, cut the thread in 2-3 minutes.

In the new method, an attachment is mounted on a screw-cutting lathe. This attachment is a rotating arbor with a special milling cutter, which is actuated by a separate electric motor.

The small milling cutter, four teeth of which are manufactured precisely according to the thread profile, makes 2,000 rpm. During machining, the cutter moves forward. The part which is clamped in the chuck of the machine-tool spindle makes only 6 revolutions. The teeth of the cutter are made of hard alloy possessing a high degree of wear resistance.

V. A. Palekho, shop manager, and A. P. Matveichev, senior technologist, participated in the development of the new cutting tool and technology. At present, they are developing their own method for high-speed metal cutting.

MANUFACTURE HOBBS WITH INSERTED HARD-ALLOY BLADES -- Moscow, Moskovskaya Pravda, 15 Mar 53

The All-Union Scientific Research Tool Institute has developed a group of hobs for high-speed gear cutting. The new tool has hard-alloy blades which will make it possible to increase the machining speed six to eight times.

Since the blades are of the inserted type, in the event that one tooth should break or become dull, it can be easily removed and replaced by a new one.

With the use of the new hobs, the cost of gear cutting will be decreased nearly 1.5 times and labor productivity will increase three to five times. A technology for grinding the new tool has also been developed. The Moscow Tool Plant has begun mass production of the new high-production cutters.

INVENTS SIMPLE VIBRATION DAMPER -- Moscow, Pravda, 8 Apr 53

D. I. Ryzhkov, a technician at a machinery plant in Gor'kiy, in cooperation with engineering and technical workers at the plant, has invented a vibration damper of very simple design.

It consists of a bolt, bushing, spring, and cap. The device is mounted on the cutter and damps its vibration as well as the vibration of its tool post. Five sizes of vibration dampers have been developed. The smallest weighs 40 grams and the largest weighs one kilogram. Many high-speed lathe operators at the plant are already using these vibration dampers. They have proved very effective. The life of cutters has more than doubled. Surface finish has improved a great deal, and the accuracy of machining has improved considerably.

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PARTY COMMITTEE STUDIES DAMPER -- Moscow, Pravda, 12 Apr 52

On 10 April, the Gor'kiy City Party Committee called a meeting of machine tool operators and technologists of industrial enterprises in Gor'kiy for the purpose of discussing the introduction into production of a new vibration damper designed by Ryzhkov.

Toward the conclusion of the meeting the participants were conducted to the plant laboratory where Ryzhkov works. He demonstrated the vibration damper at various speeds and with various feeds. Later they were conducted to one of the shops where a large number of lathe operators are using the new device. First they listened to a turret lathe with the Plant imeni Ordzhonikidze trademark as it was put into operation at high speeds, without the vibration damper. The high-speed of cutting produced a very loud noise and whistling. With the installation of the vibration damper, the noise stopped immediately.

CHANGE IN MILLING CUTTER DESIGN INCREASES ITS LIFE -- Moscow, Pravda, 14 Apr 53

To increase labor productivity, I. Leonov, a milling machine operator at the Leningrad Kirov Plant, turned his attention to increasing the life of cutting tools. He observed that the frequent changing of cutting tools decreases the productive time of machine tools and the minutes lost in this operation in one day add up to hours.

His problem was to determine why a milling cutter fails every 12 minutes. After studying this problem, he came to the conclusion that the main reason for cutter failure is the rapid clogging of the mill flute (kanavka) with chips. To eliminate this condition, the flutes had to be made wider. Leonov manufactured a sample of a new mill and changed the shape of the flute. It was made approximately twice as wide as on the old mill. Testing showed that without any changes being made in operating conditions the life of the cutter increased from 12 to 100 minutes.

APPLY NEW PROGRESSIVE TECHNOLOGIES AT MACHINE-TOOL PLANT -- Leningradskaya Pravda, 2 Apr 53

The Leningrad Kirov Plant has developed 65 constant-flow lines. About 600 machine tools at the enterprise operate under high-speed conditions. The plant has more than 1,000 high-speed machine-tool operators. Electric-spark metalworking is being used extensively at the plant.

NEW APPARATUS FOR HIGH-FREQUENCY HARDENING OF LARGE PARTS -- Moscow, Vechernyaya Moskva, 9 Apr 53

Until recently, high-frequency-current hardening had been used at the Moscow Machine Tool Building Plant imeni Ordzhonikidze only in processing small parts such as gears, shafts, bushings, and spindles.

Workers at the department for hardening by high-frequency current were assigned the task of perfecting the hardening of surfaces of large parts such as the ways of beds, carriages, and slides made of cast iron.

A group of specialists developed and manufactured in a short period a special apparatus for hardening large machine-tool parts, thus solving the problem. This will make it possible to increase considerably the life of machine tools produced at the plant.

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REPLACE BRONZE AND BABBIT PARTS WITH DUCTILE IRON -- Moscow, Trud, 4 Apr 53

A complex brigade at the Rostsel'mash Plant is successfully replacing parts made of bronze and babbitt with normalized perlite-ferrite ductile iron. The technology for casting bushings from this iron by the centrifugal method, as well as the optimum conditions for the heat-treatment of parts, their annealing, and normalizing, have been worked out.

The personnel at the ductile iron shop have mastered the production of good quality iron bushings manufactured according to the new method. The first 15 machine tools in which such bushings were installed have been operating faultlessly. Recently, in the metalware shop, iron bushings were installed on bolt-making semiautomatics, nut-threading machines, in a powerful press, and certain other equipment. In the first tool shop, a lathe has been equipped with antifriction bearings made of ductile iron.

In 1953, more than 100 machine tools and presses are being slated for fitting with bushings made of normalized antifriction perlite-ferrite ductile iron.

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